

Introduction

With the official start of summer, this Data Byte considers the popular notion that crime peaks in the summer. A quick Google search for the phrase “summer crime” yields 17,900 results, compared to 3,500 for “spring crime,” 1,680 for “fall crime,” and 1,600 for “winter crime.” FBI analysis of national crime data backs this perception, finding that both violent and property crime peak in July and August.¹

This Data Byte explores the patterns of crime in Columbus over the course of one year (2009), analyzing patterns for major categories of crime by date, day of the week, and month and for holidays. We found that:

- Seasonal crime patterns in Columbus differed from national trends, with crime peaking in the spring (May and June), rather than in the summer.
- The most frequent day of the week for crime in 2009 was Friday.
- Crimes against society (e.g., drugs, prostitution) happened most often in July, and crimes against persons (e.g., violence, sexual) occurred most often on Saturdays.

- Fewer crimes occurred on Christmas (150) and Thanksgiving (147) than on New Year’s Day (268) and St. Patrick’s Day (245).

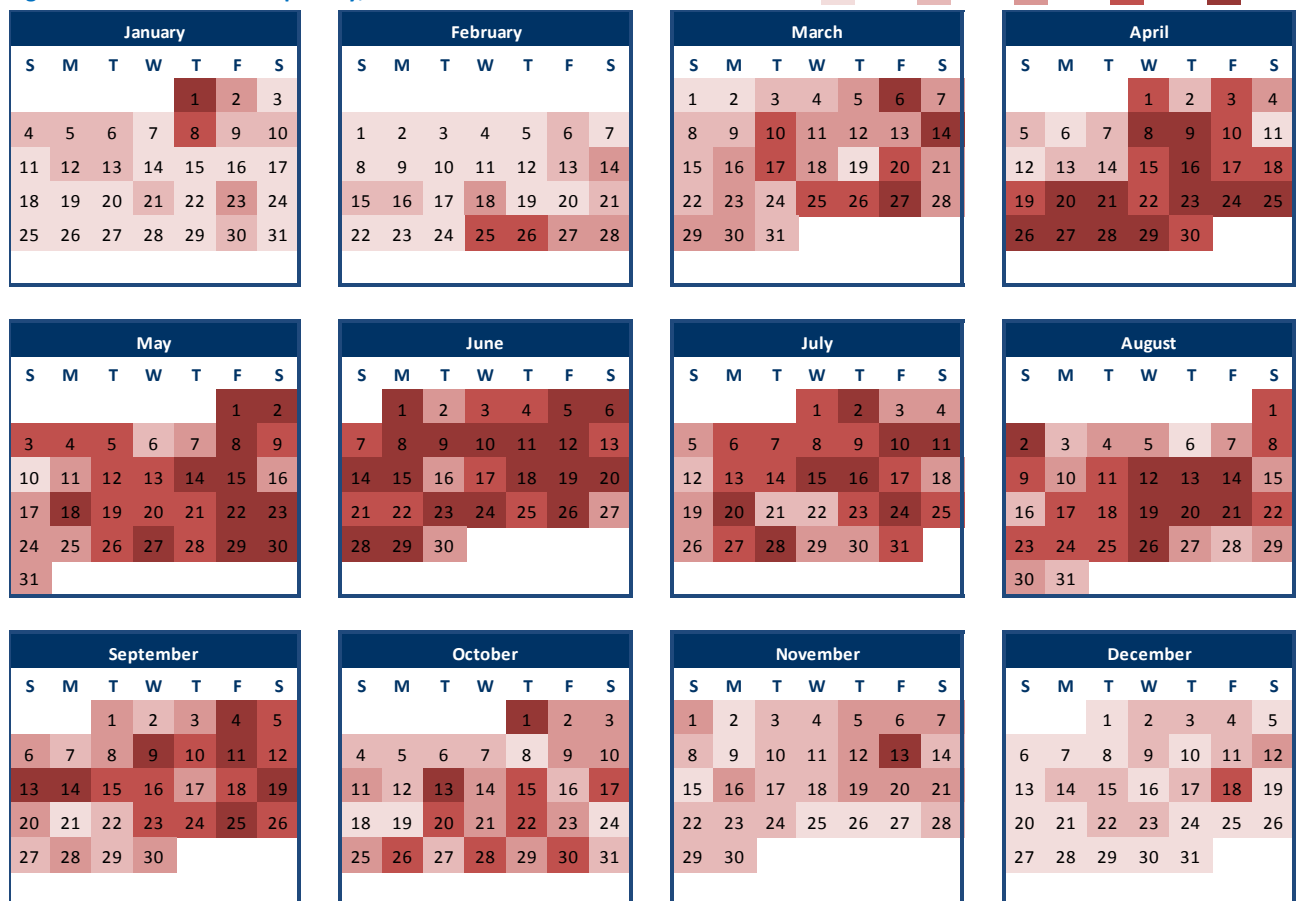
The 2009 crime calendar

The 2009 calendar in Figure 1 displays the days of the year based on the number of reported crimes. The calendar includes 79,739 crimes reported to or by the Columbus Division of Police with a specific incident date. The calendar does not include crimes for which a range of dates was reported (see sidebar next page).

The 365 days of the year were sorted by the number of crimes per day and then grouped into quintiles of about 73 days each ($\pm 1-2$ days). The 20% of days with the fewest crimes had between 46 and 192 crimes per day; the 20% of days with the most crimes had between 249 and 293 crimes per day.

The 2009 calendar shows that every Friday in May and June was in the highest quintile for the number of reported crimes. June 12, 2009, a Friday, had the most reported crimes (293) of all days in the year.

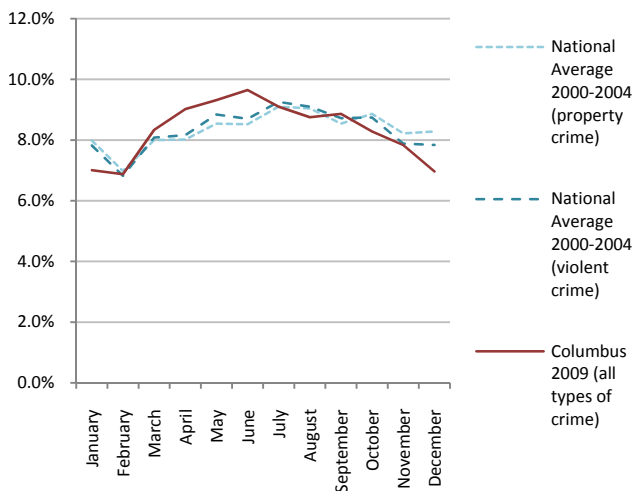
Figure 1. Number of crimes per day, Columbus 2009



A spring crime peak

FBI analysis of 2000-2004 national crime data shows that both property and violent crime peaked in July, with 9.1% and 9.3% of the average annual crimes in each category occurring in that month. In Columbus, the 2009 monthly peak was June, with 9.6% of all crimes in the year. Compared to the U.S., the monthly distribution of crime in Columbus was more skewed to the months of March through June and, to a lesser extent, September (Figure 2).

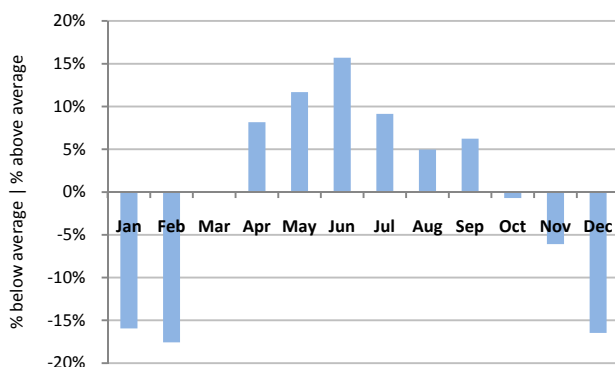
Figure 2. Percent distribution of crimes by month, 2000-2004 average (U.S.) and 2009 (Columbus)



Source: Federal Bureau of Investigations; Columbus Division of Police

Figure 3 compares the average number of crimes per day in each month with the average for the entire year. Dividing the 79,739 total reported crimes in 2009 by 365 days yields a daily average of 218 crimes. By comparison, June had 253 crimes per day, 16% more than the 2009 daily average. February had the lowest number of crimes per day with 180, or 18% below the 2009 average.

Figure 3. Crimes per day by month, percent above or below the annual daily average, Columbus 2009



About the data

Working with daily crime data

All data in this Data Byte were obtained from the Columbus Division of Police, unless otherwise noted. One of the challenges in analyzing police data by day is that sometimes the specific date when the crime occurred is not known. This is especially the case with property crimes, where the victim may have been away from his or her home, vehicle, or other property for a period of several days during which the crime occurred. In such cases, the victim or officer would likely report a range of possible dates.

Because of this, the Data Byte analyzes only the 79,739 (out of 95,587) records from 2009 that have a single, specific date recorded. The table below shows the percentage of the major categories of crime that were reported to have occurred on a specific date.

Type of crime	Overall no.	No. with single date	% single date
Persons	14,055	13,849	98.5%
Property	56,936	41,970	73.7%
Society	7,902	7,863	99.5%
Other	16,694	16,057	96.2%
TOTAL	95,587	79,739	83.4%

Simplifying the crime categories

The Columbus Division of Police data contain 32 categories for the primary description of a crime. For this analysis, CRP collapsed this list into the major categories of crimes against persons, property, and society.

Crimes Against Persons

Aggravated assault
Child enticement
Kidnapping
Molesting
Murder
Prowling
Robbery
Sexual assault
Simple assault
Voyeurism

Crimes Against Property

Arson
Automobile theft
Burglary
Coin (tampering with coin machine)
Larceny (elderly)
Larceny (felony)
Larceny (misdemeanor)
Larceny (misdemeanor—gas)
Larceny (prescription)
Malicious destruction
Theft from automobile or of auto parts
Trespassing

Crimes Against Society

Bomb threat
Curfew arrest
Discharge—firearm
Drug offense
Prostitution
Public indecency
Traffic arrest
Weapons offense

Other Crimes

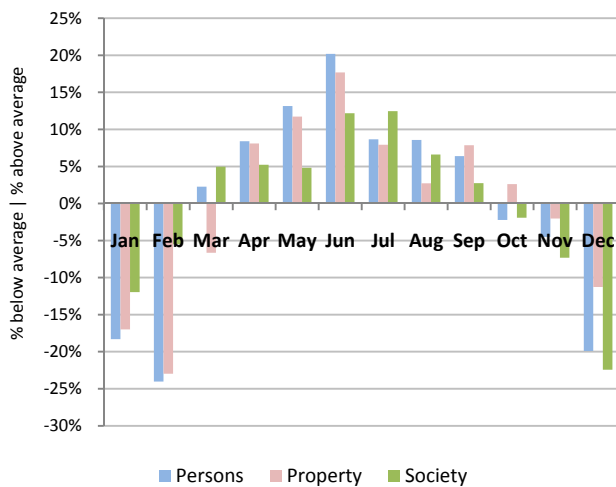
Arrest (wanted by other enforcement agency)
Miscellaneous

Other variations in when crime occurs

• Monthly variation by crime category

In 2009, crimes against persons and crimes against property were most frequent in June and least frequent in February, similar to the overall timing of crime in Columbus. Crimes against society, however, were most frequent in July and least frequent in December (Figure 4).

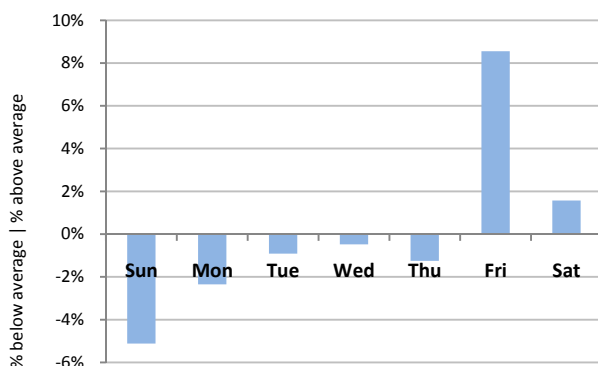
Figure 4. Crimes per day by month and crime category, percent above or below the annual daily average, Columbus 2009



• Variation by day of the week

In 2009, there was an average of 237 crimes per day on Fridays, 9% above the daily average for the year (218) (Figure 5). The only other day of week with a daily average above 218 was Saturday, with 222. Sundays had the fewest crimes, with 207 per day, 5% below the 2009 daily average.

Figure 5. Crimes per day of the week, percent above or below the annual daily average, Columbus 2009



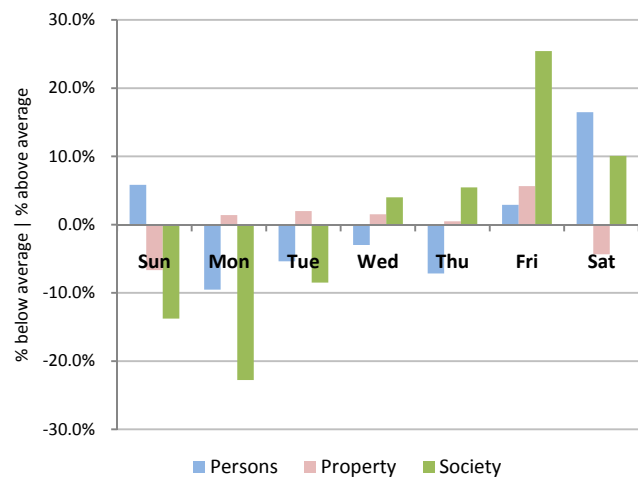
• Day of the week variation by crime category

Compared to the Friday peak and Sunday low of crime overall, crimes against property occurred more often during the Monday through Friday work week and less often on the weekend (Figure 6). This pattern may reflect the fact that property crime, such as burglary, is a crime of opportunity that typically occurs when people are not at home.

Crimes against persons had nearly a reverse pattern, occurring more often on weekends (Friday through Sunday) and less often on Monday through Thursday.

Crimes against society were more frequent in the latter half of the week (Wednesday through Saturday). The variation between the day with the most crimes and the day with the least was greatest for this category of crime. In 2009, there were 62% more reported crimes against society on the average Friday than on the average Monday.

Figure 6. Crimes per day by day of the week and crime category, percent above or below the annual daily average, Columbus 2009



• Variations related to holidays

Large variations in crime exist across holidays and other special days of the year. Fewer incidents of crime happened on Christmas, Thanksgiving, and Easter than on most other days of the year in 2009 (Figure 7). In contrast, relatively high frequencies of all types of crime occurred on St. Patrick's Day and the Fridays before extended holiday weekends (Memorial Day, Labor Day).

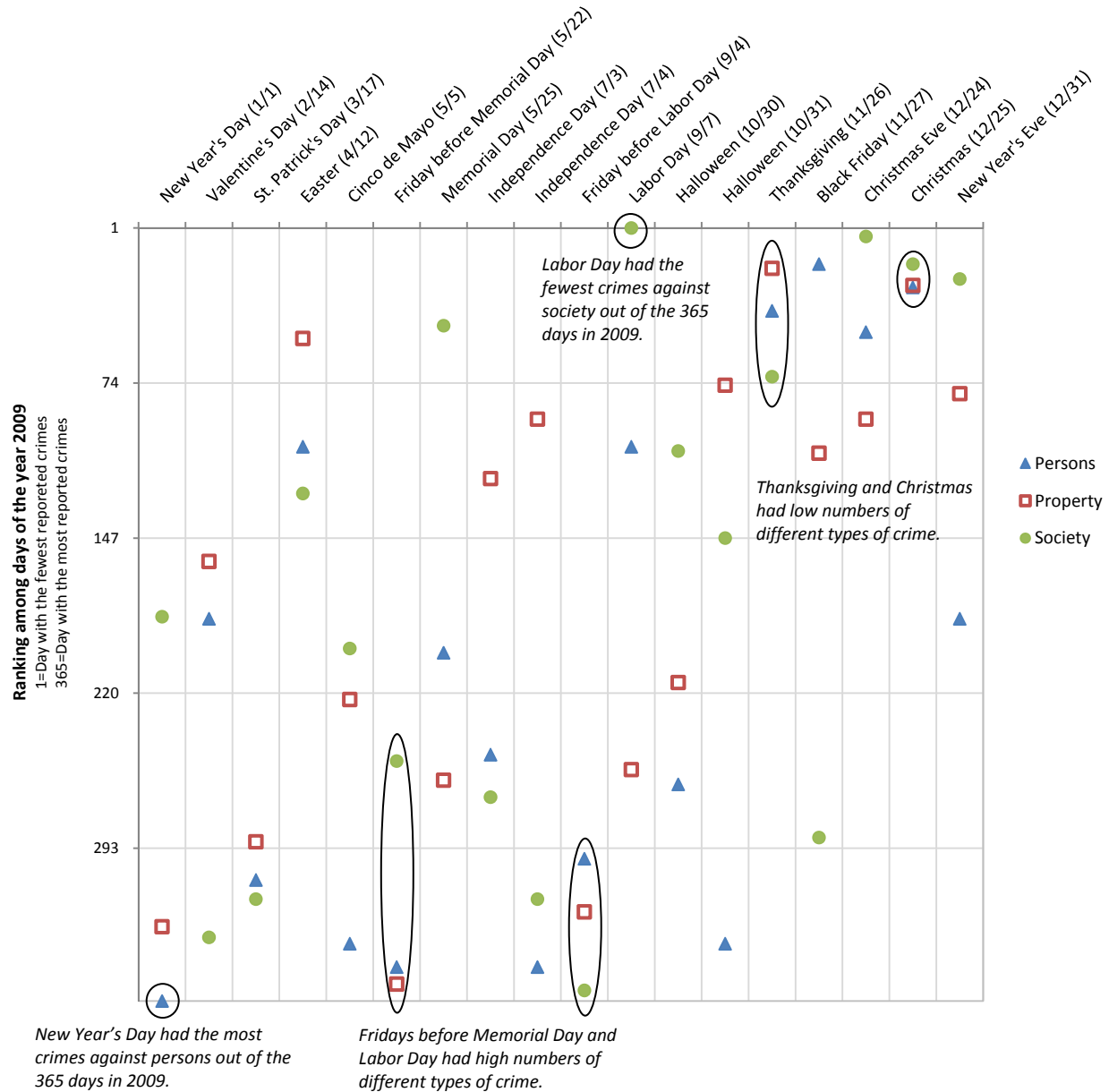
In 2009, more crimes against persons happened on New Year's Day (70) than on any other day of the year (Figure 7). Of the 268 crimes overall reported on New

Year's Day, 210 recorded a specific time of day. Nearly half (45%, or 94 records) of these were committed between midnight and 3 A.M. Many more crimes happened after ringing in the New Year in 2009, than happened before midnight on December 31.

Labor Day weekend had contrasting patterns. The fewest crimes against society of any day in

2009 occurred on Labor Day (4), but the Friday before Labor Day had the fifth most (37). Overall, the Friday before Labor Day had nearly 40% more reported crimes than did Labor Day (276 compared to 198). A similar pattern occurred on Memorial Day weekend: the number of crimes reported for the Friday before the holiday (287) was 30% higher than the number reported for the actual holiday (220).

Figure 7. Ranking of selected holidays and other special days by type of crime and number of crimes, 2009
(1 = day in the year with the fewest reported crimes in a category; 365 = day with the most reported crimes in a category)



Questions for further investigation

Theories connecting crime and aggressive behavior with seasonality, particularly temperature, have existed for over a century, according to Cohen et al (2003). In their paper, these researchers argue for a more nuanced seasonality model that incorporates socioeconomic factors such as human capital and transient populations.²

Although this Data Byte provides interesting analysis of Columbus crime data, it also raises questions for further investigation:

- Why does crime peak in May and June instead of July and August like the rest of the nation?
- What are the reasons for the monthly and day-of-week variations in the different types of crime?
- On holidays and other special days, why does the frequency of crime seem to correspond more with the type of occasion than with the weather alone?
- To what extent do crime patterns (type and frequency) vary by neighborhood type, including land use and socioeconomic variables?
- How do crime patterns in other parts of Franklin County or the region compare to those in Columbus?

Endnotes

1. Federal Bureau of Investigations. *Crime in the United States 2004*. Retrieved from http://www.fbi.gov/ucr/cius_04/offenses_reported/index.html
2. Cohen, J. et al (2003) *Estimation of crime seasonality: A cross-sectional extension to time-series classical decomposition*. The H. John Heinz III School of Public Policy and Management Carnegie Mellon University. Retrieved from <http://www.heinz.cmu.edu/research/132full.pdf>

About Community Research Partners

Community Research Partners (CRP) is a unique nonprofit research center that strengthens communities through data, information, and knowledge. CRP works in a wide range of fields, including education, health, housing, employment, safety, poverty, community development, and race and diversity. Since its formation in 2000, CRP has undertaken more than 230 research, evaluation, and community data projects both within and outside of central Ohio.

CRP is a partnership of the City of Columbus, United Way of Central Ohio, The Ohio State University, and the Franklin County Commissioners. CRP is a partner in the Urban Institute's National Neighborhood Indicators Partnership and is the Ohio partner for the national Working Poor Families Project.

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